

Remarks

The office action of October 6, 2008 has been carefully reviewed. In response to this office action, claims 1, 4, 6, 16, 18, 19 and 24 have been amended. Claims 1-30 are currently pending and presented for review. Favorable reconsideration and allowance are respectfully requested in light of the remarks which follow.

Drawings

The Examiner indicated that the informal drawings were not of sufficient quality to permit examination. As a result, formal drawings are being submitted with this amendment. No new material has been added to the drawings.

Specification

The Examiner requested that the status for the cross-references cited in the specification be updated. Paragraph 0001 has been amended accordingly.

Claim Objections

The Examiner objected to the use of abbreviations in claims 4, 6, 18, and 19. These claims have been amended to define these abbreviations.

Double Patenting Rejection

Claims 1-30 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Pat. No. 7,305,272.

Claims 1-30 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Pat. No. 7,228,187.

Claims 1-21 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Pat. No. 7,146,232.

A terminal disclaimer is being filed in conjunction with this Amendment to overcome the above-mentioned nonstatutory obviousness-type double patenting rejections.

Claim Rejections – 35 U.S.C. § 102

Claims 1-30 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Somers, U.S. 6,243,396 (herein the '396 patent).

The present invention addresses a problem fundamental to industrial controllers, being that they must be readily reprogrammed for different control situations by industrial engineers who may not be trained in creating agent-type programs. The present invention therefore allows the industrial control to be programmed in a conventional control style suitable for real-time control and to communicate with agent type languages through a common memory structure. In this way, the synchronous operation of the control language (necessary for reliable control) may be augmented by the asynchronous operation of agent-type systems, all in an environment where control programs must be constantly reformulated. In one embodiment, the present invention allows a standard relay ladder language to be used as a programming language in an agent environment.

Claim 1

Claim 1 has been amended to more particularly identify the nature of the "second program portion being a real-time control program exchanging data through I/O modules communicating with sensors and actuators.

In light of this amendment, it is believed that claim 1 may be readily distinguished from Somers which concerns a communication network that does not provide for the control of machinery through an industrial controller that must be readily program by industrial engineers. In particular then, Summers does not teach "a second program portion executing a real-time control program [that] controls and monitors at least one of the devices via data exchanged with an I/O module" wherein the "I/O modules communicat[es] signals with sensors and actuators attached to control machinery".

Claim 1 has been further amended to identify the contents of the shared data table. The shared data table includes information relating to the control and status of the device with which the processing component is associated. The shared data table is further accessible for both reads and writes by each of the program portions (paragraph 62). This dual accessibility to the data table allows the agent portion of the program to affect device operation if there is a change desired by the control system and the device portion

of the program to affect the control system if the device operation changes (paragraphs 63-65).

The Examiner has identified col. 10, line 56-col. 12, line 5 of the '396 patent as disclosing the memory component element of claim 1. Applicant submits that this element is not disclosed by the '396 patent, particularly in light of the amendments to claim 1. This section of the '396 patents discusses many agent related tasks. In particular, it discusses passing messages between levels of the hierarchy (col. 10, line 66-col. 11, line 9 and col. 10, line 49-53), service agent tasks (col. 10, lines 10-48), and configuration agent tasks (col. 10 lines 20-22). Throughout this section, the '396 patent identifies tasks for each of the agent components but never identifies a data table accessed by two different program portions. Additionally, because this interaction is occurring at the level of a spanning authority it is removed from any device in the control system. Consequently, a program portion controlling or monitoring the device cannot be accessing the same memory component as the program portion performing the agent tasks. Further, while it is possible that the messages discussed in this portion of the '396 patent may be passed between program portions, it is clear that one portion is responsible for maintaining each of the data identified (e.g. the possible routes, the preferred routes, or the service agreement). This portion of the '396 patent does not disclose the joint memory arrangement contemplated by claim 1.

For the above mentioned reasons Applicant submits that claim 1 is in condition for allowance. Claims 16 and 24 have been amended in the same manner as claim 1, and for the above mentioned reasons, Applicant believes that claims 16 and 24 are similarly in condition for allowance.

Claims 3 and 17

Claims 3 and 17 have been amended to indicate that the program is written in "ladder logic" rather than "ladder logic format" to clearly indicate that the limitation requires a control program written in ladder logic. It is believed that the prior art does not teach a system that provides this capability or that provides a platform that would permit industrial control languages of this type to be used.

Claims 2-15, 17-23, and 25-30 depend either directly or indirectly from one of the independent claims and are therefore also believed to be in condition for allowance.

Conclusions

In light of these remarks and amendments, it is believed that claims 1-30 are now in condition for allowance and allowance is respectfully requested. The Examiner is encouraged to contact the undersigned if minor amendments are needed in the figures, specification, or claims to bring this case into allowance.

Respectfully submitted,

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